

## JOHN ABBOT'S LONDON YEARS

## PART III

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## IV. Abbot's Linnaean knowledge

Not surprisingly, a number of the exotic specimens which Abbot drew with increasing frequency during his final years in England were yet to be scientifically described. (Some of his subjects escaped initial description for a considerable length of time; more striking examples are C86, the skipper *Cabares potrillo* (Lucas), 1857, and C85, the pierid *Eurema adamsi* Lathy, 1898.)<sup>62</sup> Many such insects unknown to science were entering the London cabinets during the 1770s, and in Virginia and Georgia Abbot would encounter a paradise of undescribed fauna. Had he been more inclined toward taxonomy, his reputation might have been considerably enhanced, but he thought of himself as an observer and recorder, a field naturalist rather than a nomenclator. So far as is known, Abbot never attempted to publish a scientific description, even though many of the American animals which he studied and painted merited such treatment. He consistently deferred to the greater taxonomic knowledge of others, as when he sent his drawings and notes to James Edward Smith for publication with the explanation that he had not attempted to describe the insects "in any scientific manner, leaving that for you[r] superior Abilities."<sup>63</sup>

But Abbot was hardly unaware of taxonomic procedures. He had used Linnaean trivial names when annotating drawings of insects made in 1767, 1771 and 1772 (C12, 17, 93, 94, 97), and late in 1772 he applied the system of Linnaeus to a considerable body of his entomological work. He selected forty-two of his water-colour compositions, containing two hundred and thirty-five insect drawings, for arrangement in Linnaean order, perhaps with eventual publication in mind. The group is that now at Harvard (H1-42), the earliest of many sets which Abbot would embellish with explanatory notes and title-pages.<sup>64</sup> Abbot's friends could easily have coached him while he was ordering his drawings and preparing a manuscript 'text.' There were no more avid disciples of Linnaeus in London than Drury and his fellow naturalists, especially Solander, whose reputation as the local arbiter of his master's system had helped to secure his pre-*Endeavour* position at the British Museum.<sup>65</sup> Drury used Linnaean nomenclature in the *Illustrations*, praising its originator: "This author is the principal one I have quoted among the descriptive writers: his great judgment in this study, the plain method he has laid down for the classing of insects, together with the excellency of his generical characters, are what must endear him

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to every professor of this study."<sup>66</sup> A copy of the first volume of the *Illustrations* had been sent to Linnaeus with a covering letter in which Drury styled the Swede "ye greatest *Master* of natural history now existing" and congratulated him "on the effects w[hi]ch your *Systema* has had among ye followers of natl. hist. here in London."<sup>67</sup> Abbot might have borrowed Drury's copy of the *Systema Naturae* (it was the twelfth edition, 1766-1768),<sup>68</sup> but he chose instead to consult one of a number of works in English which had been specifically written to apply Linnaean classification and nomenclature to the British flora and fauna.<sup>69</sup>

Abbot used the first volume (1769) of John Berkenhout's *Outlines of the Natural History of Great Britain and Ireland*, which included an extensive section on insects and their relatives. Although the dependence was not mentioned, it is easily traced. First, the compositions were arranged and numbered consecutively to conform to a progression of Linnaean orders, from Coleoptera to Aptera. (In some cases this was not possible, as several sheets included species of various orders.) Abbot then wrote the manuscript, which included a brief account of each species, incorporating data from his entomological journal. Abbot's comments about capture, metamorphosis and behaviour often reflected the study of a species over a period of time, and did not all necessarily refer to the precise individuals depicted in the drawings. Nearly all of the Linnaean content of the manuscript was taken from Berkenhout. Whenever Abbot gave characters of orders or genera, these were copied directly, or nearly so, from his source. He identified as many of his insects as he could from Berkenhout's text, and almost all of his binomials were found in the book. One of the exceptions, his "*Scarabeus nitidus*" (H6), a beetle from Maryland which of course he could not locate in a volume concerning the British fauna, was surely identified from his copy of Drury's *Illustrations*. Varying amounts of Berkenhout's commentaries were incorporated in Abbot's manuscript. Such information as common name and physical description was often copied entirely or partially, or paraphrased. But Abbot's use of Berkenhout was not entirely slavish. Whenever the author's descriptions did not entirely fit the specimens which Abbot had examined and drawn, they were amended, and of course the observations on collecting, rearing and habits were Abbot's own.<sup>70</sup> Occasionally he mentioned the works of Georg Hoefnagel, Thomas Moffet, Johann Goedart, Martin Lister, Maria Sybilla Merian, and John Ray in his manuscript, but in all cases except his referral of *Argynnis paphia* (L.) to Lister's Latin edition of Goedart (H23), these citations of pre-Linnaean authors were taken *verbatim* from accounts of the same insects in his copy of Albin, which was also mentioned.<sup>71</sup> Despite Abbot's considerable, unacknowledged dependence on other sources, the finished product was attractive, and was hardly an uncreditable venture.

Considering the ample manuscript evidence, it is surprising that two previous writers have been misled about Abbot's knowledge of Linnaeus' contributions. The admirable Charles Cowan has suggested that Abbot "made friends with several prominent naturalists in London (though he never heard of Linnaeus, nor of any form of classification, until he was well over 50.)"<sup>72</sup> Vivian Rogers concluded that Abbot "lacked instruction in scientific thought. He grew up unaware of Carolus Linnaeus's system of consistent binomial nomenclature for species of plants and animals which was first advanced in 1753. It was not until a Savannah friend, Dr. Augustus G. Oemler, demonstrated it to him some time after 1805 that he learned of it."<sup>73</sup> Even if Cowan and Rogers believed that Abbot could have remained completely insulated from Linnaean thought despite his years in London and his friendship with proponents of the new system, until all was made plain when he was past fifty, an examination of the eighteenth-century drawings and notes would have revealed his awareness of Linnaeus' binomial nomenclature when he was very young, and his use of the zoological classification as early as 1772. Both writers appear to have depended on a 1914 paper by Robert P. Dow, who claimed that Abbot "never heard of the Linnean system until after 1805." Dow's source was an 1834 letter to Thaddeus W. Harris in which Augustus G. Oemler stated that Abbot had been "drawing plants since his boyhood and never knew anything of Linneus' Classification till I demonstrated it to him and created his astonishment. After this, he never committed again the error to paint differend numbers of stamens on the same flower."<sup>74</sup> Obviously Oemler, a pharmacist who was also an accomplished botanist, was writing about Abbot's supposed ignorance of Linnaeus' "sexual system," his classification of plants based on their genital organs,<sup>75</sup> and was not referring to the zoological classification or principles of binomial nomenclature. Oemler's claim was insufficiently interpreted by Dow, and subsequent authors piled Ossa upon Pelion.

But Oemler's letter does pose a problem. If Abbot could hardly have avoided Linnaean influences because of his London experience, how could he have been ignorant of such a well-known concept as the sexual system until Oemler told him about it, thirty years later in distant Georgia? Linnaeus' botanical classification, incorporated in the first edition of the *Systema Naturae* (1735) and widely publicized afterwards, was well established in Britain when Abbot was learning the rudiments of natural history.<sup>76</sup> Admittedly Abbot had no absolute need of the new systematic botany when rearing his insects and depicting their foodplants; after all, generations of entomologists had been able to feed larvae their proper pabulum without the benefit of Linnaean works, just as botanical illustrators had managed to survive before the popularity of the sexual system. It does, however, seem extraordinary that Abbot could have avoided

encountering such elementary knowledge for so long. Not only did his naturalist friends know the botanical classification, but Abbot quickly became one of the more effective students of the life histories of insects during a period when so many of the recent botanical manuals which he might reasonably have consulted for assistance in identifying foodplants were arranged according to the Linnaean method. In fact, it was clearly explained in Berkenhout's *Outlines*, the same work used by Abbot in 1772 to name and classify the insects in his drawings. The entire second volume was an application of Linnaean botany to the British flora, prefaced by a treatise on the sexual system, with classes and orders explained as being based on such organs as stamens and pistils. It would seem at first analysis that Abbot could hardly have failed to notice the Linnaean classification of plants.

When considering such a dilemma, one might suspect that Oemler erred, or distorted Abbot's knowledge of Linnaeus' botanical system. The idea is strengthened by a more general statement which prefaced his account of Abbot and the stamens: "You will be astonished when you hear that a man, so long amusing himself with Natural History, should never have been inclined to pursue it scientifically, he, although now 83 years of age, is still in the simplicity of a Schoolboy."<sup>77</sup> Oemler was of course referring to scientific "simplicity," and the comparison of Abbot's scientific approach to natural history — or, rather his supposed lack of it — to that of a schoolboy, after a lifetime of useful contributions to entomology, ornithology and scientific illustration, is even stranger than the reference to his delayed awareness of Linnaeus' sexual system. Certainly Abbot was far from being a skilled systematic zoologist, but he pursued the study of insects and birds in a manner which, in the sense of his time, can only be characterized as scientific. The only explanation to fit the facts is that Oemler's remarks about unscientific pursuit and simplicity were principally directed to the area of natural history with which *he* was almost entirely concerned; in the unfortunate and inaccurate generalization, as well as the specific example of the stamens, he was criticizing Abbot's botanical knowledge.

Oemler's comments cannot be interpreted as willful attempts to malign Abbot. He was, in fact, one of the old man's closest friends and most vigorous supporters. His true feelings emerge in a letter to T. M. Harris lamenting his own lack of success in raising a subscription to alleviate Abbot's poverty.<sup>78</sup> And it was Oemler who had elicited the "Notes" from Abbot and had sent the manuscript to T. W. Harris as an effort to further his ancient friend's reputation, which he feared had been diminished by LeConte and other workers who had used Abbot's drawings and notes to their own advantage. Oemler was well aware of the real worth of Abbot's work, and when writing to a mutual friend he saw no reason to



conceal what he honestly felt to be a shortcoming. There is evidence to indicate that he was not mistaken.

The botanist and lepidopterist Adrian Hardy Haworth praised the result of Abbot's collaboration with Smith, "the whole Plants as well as Insects being scientifically delineated and described, [so] that this publication is to the full as valuable to the Botanist, as it is to the Entomologist: we never beheld the sister sciences walk so closely, and so engagingly hand in hand, as in this interesting volume. It is truly a *Flora et Entomologia*."<sup>79</sup> Smith, who incidentally was a very competent botanist, could hardly have disagreed. (Abbot's botanical contributions to the volumes were limited to the drawings of plants, many of the common names, and occasional comments; the scientific names were Smith's responsibility.) When reviewing the species of plants originally described by Smith in the 1797 book, James Britten found no fault with Abbot's iconography.<sup>80</sup> But Oemler was not alone in his criticism. At least one other knowledgeable American botanist who was actually working continuously with native plants found fault with a number of Abbot's botanical illustrations. In 1811 William Baldwin inspected the Abbot water-colours in the Savannah library at the request of Henry Mühlenberg, and reported that they were "much more accurate than some others of older date, as they have been recently executed under the inspection of the more scientific Oemler."<sup>81</sup> In a later letter to Mühlenberg, Baldwin suggested that other botanical drawings by Abbot which he had seen, "though beautiful, are generally very defective."<sup>82</sup> Baldwin's statements lend substantial credence to Oemler's account of Abbot's difficulties with botany.

Probably the solution to the dilemma is found in Abbot's confession, made in 1817 to his correspondent Heinrich Escher, that he was "no Botanist but only an admirer of the wonderful beauty[,] forms and variety of plants and flowers."<sup>83</sup> Despite the opportunities of his London years and the knowledge of his friends, Abbot did not study scientific botany. He knew the common names of a large number of British and American plants, and these appear to have been sufficient for most of his purposes. The likely conclusion is that for a long while he did not comprehend the numerical significance of stamens and pistils, perhaps because he had thought it unnecessary to learn the floral classes and orders of Linnaeus. He may have borrowed or owned only the portion of Berkenhout's text which included the animal kingdom — the volumes were published separately over a period of several years — or he may simply have ignored the botanical pages; there have been stranger occurrences in the history of science. When he left for America, Abbot planned to collect botanical specimens as part of a general plan, but apparently he did not actively do so until much later. He did learn the scientific names of certain American flora, but observation, rather than Linnaean manuals, led him to the foodplants of his

insects. If we are to believe the well-meaning remarks by Oemler about Abbot's "simplicity," his formal knowledge of botany was still deficient in old age, although the evidence shows that for some years he had known the Latin names of an increasing number of plants. Probably this more sophisticated knowledge was coeval with his late interest in collecting individual botanical specimens and representative herbaria for customers and friends.<sup>84</sup>

Throughout much of his life, Abbot's investigations into scientific nomenclature seem to have been undertaken when he wished to identify his arthropods and birds. Even then, he was frequently unable to provide names for those of his American specimens which had been described, because in Georgia he did not have access to sufficient literature. He eventually consulted a number of works on the American fauna,<sup>85</sup> but he never fully overcame the taxonomic consequences of his relative isolation. Although such problems may have been in Abbot's mind when he decided to leave for the New World, they were hardly a deterrent to a young man who was thinking of the relatively unexplored entomological riches which waited at the end of a brief journey to the west.

## NOTES

<sup>62</sup> Abbot's drawing of *adamsi* was noticed by Andrey Avinoff and Nicholas Shoumatoff, "An annotated list of the butterflies of Jamaica," *Ann. Carneg. Mus.* 30 (1946), 269. F. Martin Brown and Bernard Heineman, *Jamaica and its butterflies* (London, 1972), 285, had some doubts as to whether "Abbot had before him a specimen of *Eurema adamsi*," but the nearly rectangular apices of the forewings of Abbot's specimen would suggest that he did.

<sup>63</sup> Abbot, "A natural history of North American insects," f. 88r, James Edward Smith Papers, Linnean Society of London.

<sup>64</sup> Most of the sets of American drawings which Abbot prepared for customers were accompanied by notes on the species which he depicted, and furnished with manuscript title-pages, although the watercolours were not necessarily intended for publication; see fn. 19 above.

<sup>65</sup> Roy A. Rauschenberg, "Daniel Carl Solander," *Dictionary of scientific biography* (New York, 1970-1980), 12: 515.

<sup>66</sup> Drury, *Illustrations*, 1: xvi-xvii.

<sup>67</sup> Drury to Carl Linnaeus, 30 August 1770, Drury letterbook, 212, BM(NH). Later Drury wrote that he had "received a most complaisant Letter from Dr. Linneus concerning my present"; Drury to Paul D. Giseke, 26 January 1771, Drury letterbook, 227, BM(NH).

<sup>68</sup> Drury, *Illustrations*, 1: xvi.

<sup>69</sup>A useful chronology of natural history imprints during the critical years of the eighteenth century when Linnaean thought was entering Britain is furnished by Richard B. Freeman, *British natural history books, 1495-1900: a handlist* (Folkestone, Kent and Hamden, Conn., 1980). More needs to be written on the acceptance of Linnaeus' ideas by British zoologists. See Allen, *The naturalist in Britain*, 31, 40-43, and William T. Stearn, "The reception of the *Species plantarum* in England and its influence on British botany," chapter IX of his extensive introduction to the Ray Society facsimile of Carl Linnaeus' *Species plantarum*, 1753 (London, 1957), 75-80. Stearn's appendix to Wilfrid Blunt, *The compleat naturalist: a life of Linnaeus* (London, 1971), 242-249, is a convenient introduction to Linnaean classification and nomenclature. Other useful studies are John L. Heller, "The early history of binomial nomenclature," *Huntia* 1 (1964), 33-70, and Stearn. "The background of Linnaeus's contributions to the nomenclature and methods of systematic biology," *Syst. Zool.* 8 (1959), 4-22.

<sup>70</sup>Or nearly so, e.g. the observation that cockroaches were found "in bake houses, and near chimnies" (H3) is Berkenhout's, not Abbot's. Curiously enough, Abbot used Berkenhout's misspelling "Papileo" for "Papilio," the clue which led to the discovery of the dependence on Berkenhout's book.

<sup>71</sup>Albin did not include *paphia* in his book. Of course Abbot would have had ample opportunity in London to consult Lister's Latin edition, *De insectis* (London, 1685), of Johann Goedart's work. Abbot was familiar with Moffet's *Insectorvm sive minimorum animalium theatrvn* (London, 1634), or the English translation, *The theater of insects* (London, 1658), as he later wrote about the "bad Copies of Mouffet's Insects" in Richard Brookes' *A new and accurate system of natural history* (London, 1763 and later editions); Abbot, "A natural history of North American insects," f. 90v, James Edward Smith Papers, Linnean Society of London.

<sup>72</sup>Charles F. Cowan, "Boisduval and LeConte, *Histoire generale et iconographie des lepidopteres et des chenilles de l'Amerique septentrionale*," *J. Soc. Bibliophy nat. Hist.* 5 (1969). 31.

<sup>73</sup>Rogers, "John Abbot," 42.

<sup>74</sup>Dow, "John Abbot," 70. The original has not been located. The spelling "differend" is printed by Dow.

<sup>75</sup>Stearn's appendix to Blunt, *The compleat naturalist*, includes a brief explanation of the "sexual system"; 243-245. Augustus G. Oemler (1774-1852) was born in Hettstedt, Germany. He emigrated to America when he was in his teens and became a pharmacist in Savannah, Georgia. Although as a naturalist Oemler was principally interested in botany, becoming very knowledgeable in the subject, he pursued entomology to some extent and kept a collection of insects. His dates, furnished from family records, have not been verified.

<sup>76</sup>Stearn, "The reception of the *Species plantarum*," 80.

<sup>77</sup>Dow, "John Abbot," 70.

<sup>78</sup>Augustus G. Oemler to Thaddeus M. Harris, 22 May 1840, Thaddeus Mason Harris Papers, Massachusetts Historical Society, Boston.

<sup>79</sup>Adrian H. Haworth, "Review of the rise and progress of the science of entomology in Great Britain," *Trans. ent Soc. Lond.* 1 (1807), 51. The issuing society was formed by the reorganization of Haworth's third Aurelian Society, and was not related to the later group which became the Royal Entomological Society of London.

<sup>80</sup>James Britten, "Smith's Georgian plants," *J. Bot., Lond.* 36 (1898), 297-302.

<sup>81</sup>William Baldwin to Henry Muhlenberg, 23 December 1811, *Reliquiae Baldwinianae*, ed. William Darlington (Philadelphia, 1843), 52, 56.

<sup>82</sup>William Baldwin to Henry Muhlenberg, 3 January 1815, *ibid.*, 155. Other comments about Abbot's drawings are in the correspondence. Abbot wrote about his negotiations with the library in Savannah; Abbot to Heinrich Escher, 18 April 1813, Abbot-Escher correspondence, Department of Rare Books, Olin Library, Cornell University.

<sup>83</sup>Abbot to Heinrich Escher, 14 April 1817, *ibid.*

<sup>84</sup>At the age of 84 Abbot observed that "There is a great variety of flowers in Georgia, but I am no Botanist, yet I am always much pleased, when I meet with any that is new to me"; Abbot to Thaddeus W. Harris, 30 August 1835, Dow, "John Abbot," 72. The original has not been located. One recipient of Abbot's botanical specimens was Stephen Elliott (1771-1830), author of *A sketch of the botany of South-Carolina and Georgia* (Charleston, [1816-] 1821-1824). Elliott acknowledged Abbot's contributions, and retained some of the plants in his herbarium, which is now located at the Charleston Museum.

<sup>85</sup>Abbot's later correspondence, notes and drawings provide the evidence. Although his friend Oemler was the first Librarian of the Savannah Library Society, an 1839 inventory of the library indicates that it had very few relevant works on natural history; *A catalogue of the books belonging to the Savannah Library Society* (Savannah, 1839). See also Richard D. Arnold, "Address before the Georgia Historical Society. . . July 24, 1871," *Collns Ga hist. Soc.* 3 (1873), 413-428. The only title in the collection entirely devoted to insects was Thomas Say, *American entomology* (Philadelphia, 1824-1828), bound in one volume. Abbot may have used the library's set of Wilson's *American ornithology*; he certainly consulted the work somewhere. Abbot is known to have purchased books in Georgia and surely had access to Oemler's private library. I am indebted to Barbara Bennett, Georgia Historical Society, for information about the Savannah Library Society.